

STIC Biotechnology Systems Branch

RAW SEQUENCE LISTING ERROR REPORT

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

Application Serial Number: 10/797,553C
Source: EDW
Date Processed by STIC: 8/29/05

THE ATTACHED PRINTOUT EXPLAINS DETECTED ERRORS.

PLEASE FORWARD THIS INFORMATION TO THE APPLICANT BY EITHER:

- 1) INCLUDING A COPY OF THIS PRINTOUT IN YOUR NEXT COMMUNICATION TO THE APPLICANT, WITH A NOTICE TO COMPLY or,**
- 2) TELEPHONING APPLICANT AND FAXING A COPY OF THIS PRINTOUT, WITH A NOTICE TO COMPLY**

FOR CRF SUBMISSION AND PATENTIN SOFTWARE QUESTIONS, PLEASE CONTACT MARK SPENCER, TELEPHONE: 571-272-2510; FAX: 571-273-0221

TO REDUCE ERRORED SEQUENCE LISTINGS, PLEASE USE THE CHECKER VERSION 4.2.2 PROGRAM, ACCESSIBLE THROUGH THE U.S. PATENT AND TRADEMARK OFFICE WEBSITE. SEE BELOW FOR ADDRESS:

<http://www.uspto.gov/web/offices/pac/checker/chkrnote.htm>

Applicants submitting genetic sequence information electronically on diskette or CD-Rom should be aware that there is a possibility that the disk/CD-Rom may have been affected by treatment given to all incoming mail.

Please consider using alternate methods of submission for the disk/CD-Rom or replacement disk/CD-Rom.

Any reply including a sequence listing in electronic form should NOT be sent to the 20231 zip code address for the United States Patent and Trademark Office, and instead should be sent via the following to the indicated addresses:

- 1. EFS-Bio (<http://www.uspto.gov/ebc/efs/downloads/documents.htm>), EFS Submission User Manual - ePAVE)**
- 2. U.S. Postal Service: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450**
- 3. Hand Carry, Federal Express, United Parcel Service, or other delivery service (EFFECTIVE 01/14/05): U.S. Patent and Trademark Office, Mail Stop Sequence, Customer Window, Randolph Building, 401 Dulany Street, Alexandria, VA 22314**

Revised 01/24/05

Raw Sequence Listing Error Summary

ERROR DETECTED
SUGGESTED CORRECTION
SERIAL NUMBER:

10/19753C

ATTN: NEW RULES CASES: PLEASE DISREGARD ENGLISH "ALPHA" HEADERS, WHICH WERE INSERTED BY PTO SOFTWARE

- | | | |
|----|--|--|
| 1 | ____ Wrapped Nucleics
____ Wrapped Aminos | The number/text at the end of each line "wrapped" down to the next line. This may occur if your file was retrieved in a word processor after creating it. Please adjust your right margin to .3; this will prevent "wrapping." |
| 2 | ____ Invalid Line Length | The rules require that a line not exceed 72 characters in length. This includes white spaces. |
| 3 | ____ Misaligned Amino Numbering | The numbering under each 5th amino acid is misaligned. Do not use tab codes between numbers; use space characters , instead. |
| 4 | ____ Non-ASCII | The submitted file was not saved in ASCII(DOS) text, as required by the Sequence Rules. Please ensure your subsequent submission is saved in ASCII text. |
| 5 | ____ Variable Length | Sequence(s) 5G contain n's or Xaa's representing more than one residue. Per Sequence Rules , each n or Xaa can only represent a single residue . Please present the maximum number of each residue having variable length and indicate in the <220>-<223> section that some may be missing. |
| 6 | ____ PatentIn 2.0 "bug" | A "bug" in PatentIn version 2.0 has caused the <220>-<223> section to be missing from amino acid sequences(s) _____. Normally, PatentIn would automatically generate this section from the previously coded nucleic acid sequence. Please manually copy the relevant <220>-<223> section to the subsequent amino acid sequence. This applies to the mandatory <220>-<223> sections for Artificial or Unknown sequences. |
| 7 | ____ Skipped Sequences (OLD RULES) | Sequence(s) ____ missing. If intentional, please insert the following lines for each skipped sequence:
(2) INFORMATION FOR SEQ ID NO:X: (insert SEQ ID NO where "X" is shown)
(i) SEQUENCE CHARACTERISTICS: (Do not insert any subheadings under this heading)
(xi) SEQUENCE DESCRIPTION:SEQ ID NO:X: (insert SEQ ID NO where "X" is shown)
This sequence is intentionally skipped

Please also adjust the "(ii) NUMBER OF SEQUENCES:" response to include the skipped sequences. |
| 8 | ____ Skipped Sequences (NEW RULES) | Sequence(s) ____ missing. If intentional, please insert the following lines for each skipped sequence.
<210> sequence id number
<400> sequence id number
000 |
| 9 | ____ Use of n's or Xaa's (NEW RULES) | Use of n's and/or Xaa's have been detected in the Sequence Listing.
Per 1.823 of Sequence Rules, use of <220>-<223> is MANDATORY if n's or Xaa's are present.
In <220> to <223> section, please explain location of n or Xaa, and which residue n or Xaa represents. |
| 10 | ____ Invalid <213> Response | Per 1.823 of Sequence Rules, the only valid <213> responses are: Unknown, Artificial Sequence, or scientific name (Genus/species). <220>-<223> section is required when <213> response is Unknown or is Artificial Sequence |
| 11 | ____ Use of <220> | Sequence(s) ____ missing the <220> "Feature" and associated numeric identifiers and responses.
Use of <220> to <223> is MANDATORY if <213> "Organism" response is "Artificial Sequence" or "Unknown." Please explain source of genetic material in <220> to <223> section.
(See "Federal Register," 06/01/1998, Vol. 63, No. 104, pp. 29631-32) (Sec. 1.823 of Sequence Rules) |
| 12 | ____ PatentIn 2.0 "bug" | Please do not use "Copy to Disk" function of PatentIn version 2.0. This causes a corrupted file, resulting in missing mandatory numeric identifiers and responses (as indicated on raw sequence listing). Instead, please use "File Manager" or any other manual means to copy file to floppy disk. |
| 13 | ____ Misuse of n/Xaa | "n" can only represent a single <u>nucleotide</u> ; "Xaa" can only represent a single <u>amino acid</u> |



IFWO

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/797,553C

DATE: 08/29/2005
TIME: 15:32:06

Input Set : A:\SEQUENCE LISTING.1092.txt
Output Set: N:\CRF4\08292005\J797553C.raw

3 <110> APPLICANT: Moyle, William R.
4 Xing, Yongna
6 <120> TITLE OF INVENTION: Protein Knobs
8 <130> FILE REFERENCE: 1092/US PCT
10 <140> CURRENT APPLICATION NUMBER: 10/797,553C
11 <141> CURRENT FILING DATE: 2004-03-10
13 <160> NUMBER OF SEQ ID NOS: 66
15 <170> SOFTWARE: PatentIn version 3.1

Does Not Comply
Corrected Diskette Needed
(Pg. 1-10) ↗

ERRORED SEQUENCES

1163 <210> SEQ ID NO: 36
 1164 <211> LENGTH: 145
 1165 <212> TYPE: PRT
 1166 <213> ORGANISM: Homo sapiens
 1168 <400> SEQUENCE: 36
 1170 Ser Lys Glu Pro Leu Arg Pro Arg Cys Arg Pro Ile Asn Ala Thr Leu
 1171 1 5 10 15
 1174 Ala Val Glu Lys Glu Gly Cys Pro Val Cys Ile Thr Val Asn Thr Thr
 1175 20 25 30
 1178 Ile Cys Ala Gly Tyr Cys Pro Thr Met Thr Arg Val Leu Gln Gly Val
 1179 35 40 45
 1182 Leu Pro Ala Leu Pro Gln Val Val Cys Asn Tyr Arg Asp Val Arg Phe
 1183 50 55 60
 1186 Glu Ser Ile Arg Leu Pro Gly Cys Pro Arg Gly Val Asn Pro Val Val
 1187 65 70 75 80
 1190 Ser Tyr Ala Val Ala Leu Ser Cys Gln Cys Ala Leu Cys Arg Arg Ser
 1191 85 90 95
 1194 Thr Thr Asp Cys Gly Gly Pro Lys Asp His Pro Leu Thr Cys Asp Asp
 1195 100 105 110
 1198 Pro Arg Phe Gln Asp Ser Ser Ser Lys Ala Pro Pro Pro Ser Leu
 1199 115 120 125
 1202 Pro Ser Pro Ser Arg Leu Pro Gly Pro Ser Asp Thr Pro Ile Leu Pro Gln
 E--> 1203 130 135 140 /45
 1206 <210> SEQ ID NO: 37
 1207 <211> LENGTH: 145
 1208 <212> TYPE: PRT
 1209 <213> ORGANISM: Artificial Sequence
 1211 <220> FEATURE:
 1212 <223> OTHER INFORMATION: hCG beta-subunit with Cys substituted for Ser138
 1214 <400> SEQUENCE: 37
 1216 Ser Lys Glu Pro Leu Arg Pro Arg Cys Arg Pro Ile Asn Ala Thr Leu

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/797,553C

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Input Set : A:\SEQUENCE LISTING.1092.txt
Output Set: N:\CRF4\08292005\J797553C.raw

1217 1 5 10 15
 1220 Ala Val Glu Lys Glu Gly Cys Pro Val Cys Ile Thr Val Asn Thr Thr
 1221 20 25 30
 1224 Ile Cys Ala Gly Tyr Cys Pro Thr Met Thr Arg Val Leu Gln Gly Val
 1225 35 40 45
 1228 Leu Pro Ala Leu Pro Gln Val Val Cys Asn Tyr Arg Asp Val Arg Phe
 1229 50 55 60
 1232 Glu Ser Ile Arg Leu Pro Gly Cys Pro Arg Gly Val Asn Pro Val Val
 1233 65 70 75 80
 1236 Ser Tyr Ala Val Ala Leu Ser Cys Gln Cys Ala Leu Cys Arg Arg Ser
 1237 85 90 95
 1240 Thr Thr Asp Cys Gly Gly Pro Lys Asp His Pro Leu Thr Cys Asp Asp
 1241 100 105 110
 1244 Pro Arg Phe Gln Asp Ser Ser Ser Lys Ala Pro Pro Pro Ser Leu
 1245 115 120 125
 1248 Pro Ser Pro Ser Arg Leu Pro Gly Pro Cys Asp Thr Pro Ile Leu Pro Gln
E--> 1249 130 135 140 *145* —
 1252 <210> SEQ ID NO: 38
 1253 <211> LENGTH: 145
 1254 <212> TYPE: PRT
 1255 <213> ORGANISM: Artificial Sequence
 1257 <220> FEATURE:
 1258 <223> OTHER INFORMATION: hCG beta-subunit residues 101-114 were replaced with their
 hFSH b
 1259 eta-subunit counterparts, namely hFSH beta-subunit residues 95-10
 1260 8
 1262 <400> SEQUENCE: 38
 1264 Ser Lys Glu Pro Leu Arg Pro Arg Cys Arg Pro Ile Asn Ala Thr Leu
 1265 1 5 10 15
 1268 Ala Val Glu Lys Glu Gly Cys Pro Val Cys Ile Thr Val Asn Thr Thr
 1269 20 25 30
 1272 Ile Cys Ala Gly Tyr Cys Pro Thr Met Thr Arg Val Leu Gln Gly Val
 1273 35 40 45
 1276 Leu Pro Ala Leu Pro Gln Val Val Cys Asn Tyr Arg Asp Val Arg Phe
 1277 50 55 60
 1280 Glu Ser Ile Arg Leu Pro Gly Cys Pro Arg Gly Val Pro Asn Val Val
 1281 65 70 75 80
 1284 Ser Tyr Ala Val Ala Leu Ser Cys Gln Cys Ala Leu Cys Arg Arg Ser
 1285 85 90 95
 1288 Thr Thr Asp Cys Thr Val Arg Gly Leu Gly Pro Ser Tyr Cys Ser Phe
 1289 100 105 110
 1292 Gly Glu Phe Gln Asp Ser Ser Ser Lys Ala Pro Pro Pro Ser Leu
 1293 115 120 125
 1296 Pro Ser Pro Ser Arg Leu Pro Gly Pro Ser Asp Thr Pro Ile Leu Pro Gln
E--> 1297 130 135 140 *145* —
 1300 <210> SEQ ID NO: 39
 1301 <211> LENGTH: 145
 1302 <212> TYPE: PRT
 1303 <213> ORGANISM: Artificial Sequence
 1305 <220> FEATURE:

RAW SEQUENCE LISTING
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TIME: 15:32:06

Input Set : A:\SEQUENCE LISTING.1092.txt
Output Set: N:\CRF4\08292005\J797553C.raw

1306 <223> OTHER INFORMATION: hCG beta-subunit residues 101-114 were replaced with their
hFSH b eta-subunit counterparts, namely hFSH beta-subunit residues 95-10
1308 8, and Serine38 in the beta-subunit carboxyterminus of this
1309 analog was replaced with Cys
1311 <400> SEQUENCE: 39
1313 Ser Lys Glu Pro Leu Arg Pro Arg Cys Arg Pro Ile Asn Ala Thr Leu
1314 1 5 10 15
1317 Ala Val Glu Lys Glu Gly Cys Pro Val Cys Ile Thr Val Asn Thr Thr
1318 20 25 30
1321 Ile Cys Ala Gly Tyr Cys Pro Thr Met Thr Arg Val Leu Gln Gly Val
1322 35 40 45
1325 Leu Pro Ala Leu Pro Gln Val Val Cys Asn Tyr Arg Asp Val Arg Phe
1326 50 55 60
1329 Glu Ser Ile Arg Leu Pro Gly Cys Pro Arg Gly Val Pro Asn Val Val
1330 65 70 75 80
1333 Ser Tyr Ala Val Ala Leu Ser Cys Gln Cys Ala Leu Cys Arg Arg Ser
1334 85 90 95
1337 Thr Thr Asp Cys Thr Val Arg Gly Leu Gly Pro Ser Tyr Cys Ser Phe
1338 100 105 110
1341 Gly Glu Phe Gln Asp Ser Ser Ser Lys Ala Pro Pro Pro Ser Leu
1342 115 120 125
1345 Pro Ser Pro Ser Arg Leu Pro Gly Pro Cys Asp Thr Pro Ile Leu Pro Gln
E--> 1346 130 135 140 145
1709 <210> SEQ ID NO: 45
1710 <211> LENGTH: 125
1711 <212> TYPE: PRT
1712 <213> ORGANISM: Artificial Sequence
1714 <220> FEATURE:
1715 <223> OTHER INFORMATION: hCGBeta,delta116-135,S138C
1717 <400> SEQUENCE: 45
1719 Ser Lys Glu Pro Leu Arg Pro Arg Cys Arg Pro Ile Asn Ala Thr Leu
1720 1 5 10 15
1723 Ala Val Glu Lys Glu Gly Cys Pro Val Cys Ile Thr Val Asn Thr Thr
1724 20 25 30
1727 Ile Cys Ala Gly Tyr Cys Pro Thr Met Thr Arg Val Leu Gln Gly Val
1728 35 40 45
1731 Leu Pro Ala Leu Pro Gln Val Val Cys Asn Tyr Arg Asp Val Arg Phe
1732 50 55 60
1735 Glu Ser Ile Arg Leu Pro Gly Cys Pro Arg Gly Val Asn Pro Val Val
1736 65 70 75 80
1739 Ser Tyr Ala Val Ala Leu Ser Cys Gln Cys Ala Leu Cys Arg Arg Ser
1740 85 90 95
1743 Thr Thr Asp Cys Gly Gly Pro Lys Asp His Pro Leu Thr Cys Asp Asp
1744 100 105 110
1747 Pro Arg Phe Gly Pro Cys Asp Thr Pro Ile Leu Pro Gln
E--> 1748 115 120 125
1843 <210> SEQ ID NO: 48
1844 <211> LENGTH: 140
1845 <212> TYPE: PRT

RAW SEQUENCE LISTING
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DATE: 08/29/2005
TIME: 15:32:06

Input Set : A:\SEQUENCE LISTING.1092.txt
Output Set: N:\CRF4\08292005\J797553C.raw

1846 <213> ORGANISM: Artificial Sequence
 1848 <220> FEATURE:
 1849 <223> OTHER INFORMATION: hCGbeta,delta131-135,S138C
 1851 <400> SEQUENCE: 48
 1853 Ser Lys Glu Pro Leu Arg Pro Arg Cys Arg Pro Ile Asn Ala Thr Leu
 1854 1 5 10 15
 1857 Ala Val Glu Lys Glu Gly Cys Pro Val Cys Ile Thr Val Asn Thr Thr
 1858 20 25 30
 1861 Ile Cys Ala Gly Tyr Cys Pro Thr Met Thr Arg Val Leu Gln Gly Val
 1862 35 40 45
 1865 Leu Pro Ala Leu Pro Gln Val Val Cys Asn Tyr Arg Asp Val Arg Phe
 1866 50 55 60
 1869 Glu Ser Ile Arg Leu Pro Gly Cys Pro Arg Gly Val Asn Pro Val Val
 1870 65 70 75 80
 1873 Ser Tyr Ala Val Ala Leu Ser Cys Gln Cys Ala Leu Cys Arg Arg Ser
 1874 85 90 95
 1877 Thr Thr Asp Cys Gly Gly Pro Lys Asp His Pro Leu Thr Cys Asp Asp
 1878 100 105 110
 1881 Pro Arg Phe Gln Asp Ser Ser Ser Lys Ala Pro Pro Pro Ser Leu
 1882 115 120 125
 1885 Pro Ser Gly Pro Cys Asp Thr Pro Ile Leu Pro Gln
 E--> 1886 130 135 140
 2123 <210> SEQ ID NO: 56
 2124 <211> LENGTH: 10
 2125 <212> TYPE: PRT
 2126 <213> ORGANISM: Artificial Sequence
 2128 <220> FEATURE:
 2129 <223> OTHER INFORMATION: X1-Asp-Asp-Asp-Asp-Lys-Ser-Ym-Cys-Zn, where X, Y, and Z
 refer to
 2130 any tail portion amino acids and l, m, and n refer to the lengths
 2131 of the tail portion amino acids
 2133 <220> FEATURE:
 2134 <221> NAME/KEY: MISC_FEATURE
 2135 <223> OTHER INFORMATION: Xaa refers to any tail portion amino acids and n refers to
 the
 2136 lengths of the tail portion amino acids
 2140 <400> SEQUENCE: 56
 E--> 2142 Xaa Asp Asp Asp Asp Lys Ser Xaa Cys Xaa
 E--> 2143 1 5 10
 2147 <210> SEQ ID NO: 57
 2148 <211> LENGTH: 92
 2149 <212> TYPE: PRT
 C--> 2150 <213> ORGANISM: Artificial Sequence
 2152 <220> FEATURE:
 2153 <223> OTHER INFORMATION: An hCG truncated (-subunit analog fused to the hCG alpha-
 carboxy terminus
 2155 <400> SEQUENCE: 57
 2157 Ala Pro Asp Val Gln Asp Cys Pro Glu Cys Thr Leu Gln Glu Asn Pro
 2158 1 5 10 15
 2160 Phe Phe Ser Gln Pro Gly Ala Pro Ile Leu Gln Cys Met Gly Cys Cys
 2161 20 25 30
 2163 Phe Ser Arg Ala Tyr Pro Thr Pro Leu Arg Ser Lys Lys Thr Met Leu

-pls explain source of genetic material-

see item #5 on error summary sheet

N's are not permitted in the sequence.

These amino acids are misaligned,
pls see item #3 on error summary sheet

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Input Set : A:\SEQUENCE LISTING.1092.txt
Output Set: N:\CRF4\08292005\J797553C.raw

2164 35 40 45
 2166 Val Gln Lys Asn Val Thr Ser Glu Ser Thr Cys Cys Val Ala Lys Ser
 2167 50 55 60
 2169 Tyr Asn Arg Val Thr Val Met Gly Gly Phe Lys Val Glu Asn His Thr
 2170 65 70 75 80
 2172 Ala Cys His Cys Ser Thr Cys Tyr Tyr His Lys Ser Asp Asp Pro Arg
 E--> 2173 ~~85~~ ~~90~~ ~~85~~ ~~95~~ ~~90~~ ~~98~~
 2175 Phe Gly Pro Cys Asp Thr Pro Ile Leu Pro Gln
 E--> 2176 ~~100~~ ~~105~~ ~~100~~ ~~105~~ ~~165~~ ~~165~~
 2178 <210> SEQ ID NO: 58
 2179 <211> LENGTH: 145
 2180 <212> TYPE: PRT
 2181 <213> ORGANISM: Artificial Sequence
 2183 <220> FEATURE:
 2184 <223> OTHER INFORMATION: hCG beta-subunit with Cys substituted for Arg94
 2186 <400> SEQUENCE: 58
 2188 Ser Lys Glu Pro Leu Arg Pro Arg Cys Arg Pro Ile Asn Ala Thr Leu
 2189 1 5 10 15
 2192 Ala Val Glu Lys Glu Gly Cys Pro Val Cys Ile Thr Val Asn Thr Thr
 2193 20 25 30
 2196 Ile Cys Ala Gly Tyr Cys Pro Thr Met Thr Arg Val Leu Gln Gly Val
 2197 35 40 45
 2200 Leu Pro Ala Leu Pro Gln Val Val Cys Asn Tyr Arg Asp Val Arg Phe
 2201 50 55 60
 2204 Glu Ser Ile Arg Leu Pro Gly Cys Pro Arg Gly Val Pro Asn Val Val
 2205 65 70 75 80
 2208 Ser Tyr Ala Val Ala Leu Ser Cys Gln Cys Ala Leu Cys Cys Arg Ser
 2209 85 90 95
 2212 Thr Thr Asp Cys Gly Gly Pro Lys Asp His Pro Leu Thr Cys Asp Asp
 2213 100 105 110
 2216 Pro Arg Phe Gln Asp Ser Ser Ser Ser Lys Ala Pro Pro Pro Ser Leu
 2217 115 120 125
 2220 Pro Ser Pro Ser Arg Leu Pro Gly Pro Ser Asp Thr Pro Ile Leu Pro Gln
 E--> 2221 130 135 140
 2224 <210> SEQ ID NO: 59
 2225 <211> LENGTH: 145
 2226 <212> TYPE: PRT
 2227 <213> ORGANISM: Artificial Sequence
 2229 <220> FEATURE:
 2230 <223> OTHER INFORMATION: hCG beta-subunit with Cys substituted for Arg95
 2232 <400> SEQUENCE: 59
 2234 Ser Lys Glu Pro Leu Arg Pro Arg Cys Arg Pro Ile Asn Ala Thr Leu
 2235 1 5 10 15
 2238 Ala Val Glu Lys Glu Gly Cys Pro Val Cys Ile Thr Val Asn Thr Thr
 2239 20 25 30
 2242 Ile Cys Ala Gly Tyr Cys Pro Thr Met Thr Arg Val Leu Gln Gly Val
 2243 35 40 45
 2246 Leu Pro Ala Leu Pro Gln Val Val Cys Asn Tyr Arg Asp Val Arg Phe
 2247 50 55 60

← misaligned
numbering

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Input Set : A:\SEQUENCE LISTING.1092.txt
Output Set: N:\CRF4\08292005\J797553C.raw

2250 Glu Ser Ile Arg Leu Pro Gly Cys Pro Arg Gly Val Pro Asn Val Val
2251 65 70 75 80
2254 Ser Tyr Ala Val Ala Leu Ser Cys Gln Cys Ala Leu Cys Arg Cys Ser
2255 85 90 95
2258 Thr Thr Asp Cys Gly Gly Pro Lys Asp His Pro Leu Thr Cys Asp Asp
2259 100 105 110
2262 Pro Arg Phe Gln Asp Ser Ser Ser Lys Ala Pro Pro Pro Ser Leu
2263 115 120 125
2266 Pro Ser Pro Ser Arg Leu Pro Gly Pro Ser Asp Thr Pro Ile Leu Pro Gln
E--> 2267 130 135 140 185

2270 <210> SEQ ID NO: 60
2271 <211> LENGTH: 145
2272 <212> TYPE: PRT
2273 <213> ORGANISM: Artificial Sequence
2275 <220> FEATURE:
2276 <223> OTHER INFORMATION: hCG beta-subunit with Cys substituted for Ser96
2278 <400> SEQUENCE: 60
2280 Ser Lys Glu Pro Leu Arg Pro Arg Cys Arg Pro Ile Asn Ala Thr Leu
2281 1 5 10 15
2284 Ala Val Glu Lys Glu Gly Cys Pro Val Cys Ile Thr Val Asn Thr Thr
2285 20 25 30
2288 Ile Cys Ala Gly Tyr Cys Pro Thr Met Thr Arg Val Leu Gln Gly Val
2289 35 40 45
2292 Leu Pro Ala Leu Pro Gln Val Val Cys Asn Tyr Arg Asp Val Arg Phe
2293 50 55 60
2296 Glu Ser Ile Arg Leu Pro Gly Cys Pro Arg Gly Val Pro Asn Val Val
2297 65 70 75 80
2300 Ser Tyr Ala Val Ala Leu Ser Cys Gln Cys Ala Leu Cys Arg Arg Cys
2301 85 90 95
2304 Thr Thr Asp Cys Gly Gly Pro Lys Asp His Pro Leu Thr Cys Asp Asp
2305 100 105 110
2308 Pro Arg Phe Gln Asp Ser Ser Ser Lys Ala Pro Pro Pro Ser Leu
2309 115 120 125
2312 Pro Ser Pro Ser Arg Leu Pro Gly Pro Ser Asp Thr Pro Ile Leu Pro Gln
E--> 2313 130 135 140 145

2315 <210> SEQ ID NO: 61
2316 <211> LENGTH: 145
2317 <212> TYPE: PRT
2318 <213> ORGANISM: Artificial Sequence
2320 <220> FEATURE:
2321 <223> OTHER INFORMATION: hCG beta-subunit with Cys substituted for Thr97
2323 <400> SEQUENCE: 61
2325 Ser Lys Glu Pro Leu Arg Pro Arg Cys Arg Pro Ile Asn Ala Thr Leu
2326 1 5 10 15
2329 Ala Val Glu Lys Glu Gly Cys Pro Val Cys Ile Thr Val Asn Thr Thr
2330 20 25 30
2333 Ile Cys Ala Gly Tyr Cys Pro Thr Met Thr Arg Val Leu Gln Gly Val
2334 35 40 45
2337 Leu Pro Ala Leu Pro Gln Val Val Cys Asn Tyr Arg Asp Val Arg Phe

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Input Set : A:\SEQUENCE LISTING.1092.txt
Output Set: N:\CRF4\08292005\J797553C.raw

2338	50	55	60	
2341	Glu Ser Ile Arg Leu Pro Gly Cys Pro Arg Gly Val Pro Asn Val Val			
2342	65	70	75	80
2345	Ser Tyr Ala Val Ala Leu Ser Cys Gln Cys Ala Leu Cys Arg Arg Ser			
2346	85	90	95	
2349	Cys Thr Asp Cys Gly Gly Pro Lys Asp His Pro Leu Thr Cys Asp Asp			
2350	100	105	110	
2353	Pro Arg Phe Gln Asp Ser Ser Ser Lys Ala Pro Pro Pro Ser Leu			
2354	115	120	125	
2357	Pro Ser Pro Ser Arg Leu Pro Gly Pro Ser Asp Thr Pro Ile Leu Pro Gln			
E--> 2358	130	135	140	
2360	<210> SEQ ID NO: 62		<i>/4J-</i>	
2361	<211> LENGTH: 145			
2362	<212> TYPE: PRT			
2363	<213> ORGANISM: Artificial Sequence			
2365	<220> FEATURE:			
2366	<223> OTHER INFORMATION: hCG beta-subunit with Cys substituted for Thr98			
2368	<400> SEQUENCE: 62			
2370	Ser Lys Glu Pro Leu Arg Pro Arg Cys Arg Pro Ile Asn Ala Thr Leu			
2371	1	5	10	15
2374	Ala Val Glu Lys Glu Gly Cys Pro Val Cys Ile Thr Val Asn Thr Thr			
2375	20	25	30	
2378	Ile Cys Ala Gly Tyr Cys Pro Thr Met Thr Arg Val Leu Gln Gly Val			
2379	35	40	45	
2382	Leu Pro Ala Leu Pro Gln Val Val Cys Asn Tyr Arg Asp Val Arg Phe			
2383	50	55	60	
2386	Glu Ser Ile Arg Leu Pro Gly Cys Pro Arg Gly Val Pro Asn Val Val			
2387	65	70	75	80
2390	Ser Tyr Ala Val Ala Leu Ser Cys Gln Cys Ala Leu Cys Arg Arg Ser			
2391	85	90	95	
2394	Thr Cys Asp Cys Gly Gly Pro Lys Asp His Pro Leu Thr Cys Asp Asp			
2395	100	105	110	
2398	Pro Arg Phe Gln Asp Ser Ser Ser Lys Ala Pro Pro Pro Ser Leu			
2399	115	120	125	
2402	Pro Ser Pro Ser Arg Leu Pro Gly Pro Ser Asp Thr Pro Ile Leu Pro Gln			
E--> 2403	130	135	140	
2405	<210> SEQ ID NO: 63		<i>/4S-</i>	
2406	<211> LENGTH: 145			
2407	<212> TYPE: PRT			
2408	<213> ORGANISM: Artificial Sequence			
2410	<220> FEATURE:			
2411	<223> OTHER INFORMATION: hCG beta-subunit with Cys substituted for Asp99			
2413	<400> SEQUENCE: 63			
2415	Ser Lys Glu Pro Leu Arg Pro Arg Cys Arg Pro Ile Asn Ala Thr Leu			
2416	1	5	10	15
2419	Ala Val Glu Lys Glu Gly Cys Pro Val Cys Ile Thr Val Asn Thr Thr			
2420	20	25	30	
2423	Ile Cys Ala Gly Tyr Cys Pro Thr Met Thr Arg Val Leu Gln Gly Val			
2424	35	40	45	

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/797,553C

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Input Set : A:\SEQUENCE LISTING.1092.txt
Output Set: N:\CRF4\08292005\J797553C.raw

2427 Leu Pro Ala Leu Pro Gln Val Val Cys Asn Tyr Arg Asp Val Arg Phe
2428 50 55 60
2431 Glu Ser Ile Arg Leu Pro Gly Cys Pro Arg Gly Val Pro Asn Val Val
2432 65 70 75 80
2435 Ser Tyr Ala Val Ala Leu Ser Cys Gln Cys Ala Leu Cys Arg Arg Ser
2436 85 90 95
2439 Thr Thr Cys Cys Gly Gly Pro Lys Asp His Pro Leu Thr Cys Asp Asp
2440 100 105 110
2443 Pro Arg Phe Gln Asp Ser Ser Ser Ser Lys Ala Pro Pro Pro Ser Leu
2444 115 120 125
2447 Pro Ser Pro Ser Arg Leu Pro Gly Pro Ser Asp Thr Pro Ile Leu Pro Gln
E--> 2448 130 135 140 145

Artificial

C--> 2453 <213> ORGANISM: *Artificial* Sequence

2455 <220> FEATURE:

2456 <223> OTHER INFORMATION: An hCG alpha-subunit analog with Gly-Gly-Cys at its carboxyterminus

2458 <400> SEQUENCE: 64
2459 Ala Pro Asp Val Gln Asp Cys Pro Glu Cys Thr Leu Gln Glu Asn Pro
2460 1 5 10 15
2461 Phe Phe Ser Gln Pro Gly Ala Pro Ile Leu Gln Cys Met Gly Cys Cys
2462 20 25 30
2463 Phe Ser Arg Ala Tyr Pro Thr Pro Leu Arg Ser Lys Lys Thr Met Leu
2464 35 40 45
2465 Val Gln Lys Asn Val Thr Ser Glu Ser Thr Cys Cys Val Ala Lys Ser
2466 50 55 60
2467 Tyr Asn Arg Val Thr Val Met Gly Gly Phe Lys Val Glu Asn His Thr
2468 65 70 75 80
2469 Ala Cys His Cys Ser Thr Cys Tyr Tyr His Lys Ser Gly Gly Cys

E--> 2470 86 90 : 88 95 90 95 95

2471 <210> SEQ ID NO: 65

2472 <211> LENGTH: 92

2473 <212> TYPE: PRT

C--> 2482 <213> ORGANISM: *Artificial* Sequence

2483 <220> FEATURE:

2484 <223> OTHER INFORMATION: An hCG alpha-subunit analog with Asp in place of Asn52 and Cys in place of Ser92

2485 <400> SEQUENCE: 65

2486 Ala Pro Asp Val Gln Asp Cys Pro Glu Cys Thr Leu Gln Glu Asn Pro
2487 1 5 10 15

2488 Phe Phe Ser Gln Pro Gly Ala Pro Ile Leu Gln Cys Met Gly Cys Cys
2489 20 25 30

2490 Phe Ser Arg Ala Tyr Pro Thr Pro Leu Arg Ser Lys Lys Thr Met Leu
2491 35 40 45

2492 Val Gln Lys Asp Val Thr Ser Glu Ser Thr Cys Cys Val Ala Lys Ser
2493 50 55 60

2494 Tyr Asn Arg Val Thr Val Met Gly Gly Phe Lys Val Glu Asn His Thr
2495 65 70 75 80

2496 2501 Ala Cys His Cys Ser Thr Cys Tyr Tyr His Lys Ser
2497 85 90

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/797,553C

DATE: 08/29/2005
TIME: 15:32:06

Input Set : A:\SEQUENCE LISTING.1092.txt
Output Set: N:\CRF4\08292005\J797553C.raw

E--> 2505 87 90

2508 <210> SEQ ID NO: 66
2509 <211> LENGTH: 145
2510 <212> TYPE: PRT
2511 <213> ORGANISM: Artificial Sequence
2513 <220> FEATURE:
2514 <223> OTHER INFORMATION: hCG beta-subunit with Cys substituted for Ser96 and hFSH
beta-subunit residues 95-108 for hCG beta-subunit residues 101-108
2516 <400> SEQUENCE: 66
2518 Ser Lys Glu Pro Leu Arg Pro Arg Cys Arg Pro Ile Asn Ala Thr Leu
2519 1 5 10 15
2522 Ala Val Glu Lys Glu Gly Cys Pro Val Cys Ile Thr Val Asn Thr Thr
2523 20 25 30
2526 Ile Cys Ala Gly Tyr Cys Pro Thr Met Thr Arg Val Leu Gln Gly Val
2527 35 40 45
2530 Leu Pro Ala Leu Pro Gln Val Val Cys Asn Tyr Arg Asp Val Arg Phe
2531 50 55 60
2534 Glu Ser Ile Arg Leu Pro Gly Cys Pro Arg Gly Val Pro Asn Val Val
2535 65 70 75 80
2538 Ser Tyr Ala Val Ala Leu Ser Cys Gln Cys Ala Leu Cys Arg Arg Cys
2539 85 90 95
2542 Thr Thr Asp Cys Thr Val Arg Gly Leu Gly Pro Ser Tyr Cys Ser Phe
2543 100 105 110
2546 Gly Glu Phe Gln Asp Ser Ser Ser Ser Lys Ala Pro Pro Pro Ser Leu
2547 115 120 125
2550 Pro Ser Pro Ser Arg Leu Pro Gly Pro Ser Asp Thr Pro Ile Leu Pro Gln
E--> 2551 130 135 140
E--> 2556 4

145

pls delete

10/797,553C

Page 10

<210> 8
<211> 92
<212> PRT
<213> Artificial Sequence

<220>

<223> hCG alpha-subunit with Cys substituted for Leu22

<400> 8

Ala Pro Asp Val Gln Asp Cys Pro Glu Cys Thr Cys Gln Glu Asn Pro
1 5 10 15

Phe Phe Ser Gln Pro Gly Ala Pro Ile Leu Gln Cys Met Gly Cys Cys
20 25 30

Phe Ser Arg Ala Tyr Pro Thr Pro Leu Arg Ser Lys Lys Thr Met Leu
35 40 45

Val Gln Lys Asn Val Thr Ser Glu Ser Thr Cys Cys Val Ala Lys Ser
50 55 60

Tyr Asn Arg Val Thr Val Met Gly Gly Phe Lys Val Glu Asn His Thr
65 70 75 80

Ala Cys His Cys Ser Thr Cys Tyr Tyr His Lys Ser
85 90

Gly is at 4mls location.

The type of errors shown exist throughout
the Sequence Listing. Please check subsequent
sequences for similar errors.

RAW SEQUENCE LISTING ERROR SUMMARY DATE: 08/29/2005
PATENT APPLICATION: US/10/797,553C TIME: 15:32:07

Input Set : A:\SEQUENCE LISTING.1092.txt
Output Set: N:\CRF4\08292005\J797553C.raw

Invalid Line Length:

The rules require that a line not exceed 72 characters in length. This includes spaces.

Seq#:57; Line(s) 2153
Seq#:65; Line(s) 2485
Seq#:66; Line(s) 2514

VARIABLE LOCATION SUMMARY
PATENT APPLICATION: US/10/797,553C

DATE: 08/29/2005
TIME: 15:32:07

Input Set : A:\SEQUENCE LISTING.1092.txt
Output Set: N:\CRF4\08292005\J797553C.raw

OK

Use of n's or Xaa's(NEW RULES):

Use of n's and/or Xaa's have been detected in the Sequence Listing.

Use of <220> to <223> is MANDATORY if n's or Xaa's are present.

in <220> to <223> section, please explain location of n or Xaa, and which residue n or Xaa represents.

VERIFICATION SUMMARY

PATENT APPLICATION: US/10/797,553C

DATE: 08/29/2005

TIME: 15:32:07

Input Set : A:\SEQUENCE LISTING.1092.txt
Output Set: N:\CRF4\08292005\J797553C.raw

L:1203 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:36
L:1249 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:37
L:1297 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:38
L:1346 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:39
L:1748 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:45
L:1886 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:48
L:2142 M:258 W: Mandatory Feature missing, <222> Tag not found for SEQ ID#:56
L:2142 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:56 after pos.:0
L:2142 M:333 E: Wrong sequence grouping, Amino acids not in groups!
L:2143 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:56
L:2150 M:220 C: Keyword misspelled or invalid format, <213> ORGANISM for SEQ ID#:57
L:2173 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:57
M:332 Repeated in SeqNo=57
L:2176 M:252 E: No. of Seq. differs, <211> LENGTH:Input:92 Found:107 SEQ:57
L:2221 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:58
L:2267 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:59
L:2313 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:60
L:2358 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:61
L:2403 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:62
L:2448 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:63
L:2453 M:220 C: Keyword misspelled or invalid format, <213> ORGANISM for SEQ ID#:64
L:2476 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:64
L:2482 M:220 C: Keyword misspelled or invalid format, <213> ORGANISM for SEQ ID#:65
L:2505 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:65
L:2551 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:66
M:332 Repeated in SeqNo=66